

CLAIMS

What is claimed is:

1. A method for providing content to network devices in
5 a communication network, the method comprising the steps of:

determining a level of congestion of the communication
network;

calculating a cost of service based on the level of
congestion;

informing the network devices of the cost of service;

receiving a first selection from a user of a network
device specifying a content to be downloaded to the network
device during a download process;

15 receiving a second selection from the user specifying a
cost of service threshold for the download process;

automatically comparing the cost of service to the cost
of service threshold;

automatically performing the download process, when the
cost of service is less than the cost of service threshold.

20 2. The method of claim 1, further comprising the steps
of:

receiving a first user input corresponding to a time
period after which the network device will complete the
25 download process irrespective of the cost of service if the
download process is not yet completed;

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timing the time period upon a start of said performing step, when the first user input has been received; and proceeding with the download process irrespective of the cost of service, when the time period has elapsed.

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3. The method of claim 1, further comprising the steps of:

receiving a second user input corresponding to a permission to gradually increase the cost of service threshold in increments if the cost of service is above the cost of service threshold;

gradually increasing the cost of service threshold in increments until the cost of service is less than the cost of service threshold, when the cost of service is above the cost of service threshold and the second input has been received.

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4. The method of claim 3, wherein the increments are user-specified or pre-specified.

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5. The method of claim 3, wherein the second user input specifies the increments.

6. The method of claim 1, further comprising the steps of:

25 receiving a third user input corresponding to a permission to begin the download process only after a random

amount of time has elapsed from when the cost of service initially falls below the cost of service threshold; and
delaying a start of said performing step until the random amount of time has expired, when the cost of service initially 5 falls below the cost of service threshold and the third input has been received.

7. The method of claim 1, further comprising the step of notifying the user when the download process is complete.

8. The method of claim 1, wherein said informing step comprises the step of updating a previous cost of service.

9. The method of claim 1, wherein said informing step 15 comprises the step of transmitting the cost of service to the network devices using a broadcast channel common to all of the network devices.

10. The method of claim 1, wherein said informing step 20 comprises the step of informing the network devices of the level of congestion.

11. The method of claim 10, wherein said informing step comprises the step of updating a previous level of congestion.

12. The method of claim 10, wherein said informing step comprises the step of transmitting the level of congestion to the network devices using a broadcast channel common to the network devices.

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13. The method of claim 1, wherein said performing step comprises the steps of:

ceasing the download process, when the cost of service rises above the cost of service threshold; and
resuming the download process, when cost of service falls below the cost of service threshold.

14. The method of claim 1, wherein the content comprises at least one of e-mail, stock quotes, sports scores, movies, 15 audio files, data, software programs, and device driver updates.

15. The method of claim 1, wherein said comparing step comprises the step of automatically monitoring the cost of service, and said comparing step compares the cost of service to the cost of service threshold only when there is a change 20 of the cost of service.

16. The method of claim 1, further comprising the step 25 of automatically notifying the user when the cost of service is below the cost of service threshold.

17. The method of claim 1, further comprising the step of providing at least one of the level of congestion and the cost of service to users of the network devices.

5 18. The method of claim 17, wherein said providing step comprises the step of displaying at least one of the level of congestion and the cost of service to users of the network devices.

10 19. The method of claim 17, wherein said providing step comprises the step of audibly outputting at least one of the level of congestion and the cost of service to users of the network devices.

15 20. The method of claim 14, wherein said providing step comprises the step of displaying at least one of the level of congestion and the cost of service to users of the network devices using a series of stacking bars, such that increases in the level of congestion and/or the cost of service result in an increase in a number of displayed bars.

16 21. The method of claim 1, wherein the communication system is a Time Division Multiple Access (TDMA) system, and said determining step comprises the step of dividing a number 20 of used slots by a number of total slots.

22. The method of claim 1, wherein the communication system is a Code Division Multiple Access (CDMA) system, and said determining step comprises the step of dividing a number of used codes by a number of total codes.

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23. The method of claim 1, wherein the communication system is a Frequency Division Multiple Access (FDMA) system, and said determining step comprises the step of dividing a number of used frequencies by a total number of frequencies.

24. The method of claim 1, wherein the communication system is packet based, and said determining step comprises the step of dividing a number of packets in a queue that stores incoming packets by a total size of the queue.

25. A communication system, comprising:

a communication network;

20 a network controller for controlling access to the communication network, determining a level of congestion of the communication network, calculating a cost of service based on the level of congestion; and

25 a plurality of network devices, each of the plurality of network devices for accessing the communication network, receiving the cost of service from the network controller, receiving from a corresponding user of each of the plurality of network devices, respectively, a first selection specifying

a content to be downloaded during a download process, receiving a second selection from the corresponding user specifying a cost of service threshold for the download process, automatically comparing the cost of service to the cost of service threshold, and automatically performing the download process when the cost of service is less than the cost of service threshold.

26. The communication system of claim 25, wherein each of the plurality of network devices has a capability of receiving a first user input corresponding to a time period after which the download process will be completed irrespective of the cost of service if the download process is not yet completed, timing the time period upon a start of the download process when the first user input has been received, and proceeding with the download process irrespective of the cost of service when the time period has elapsed.

27. The communication system of claim 25, wherein each of the plurality of network devices has a capability of receiving a second user input corresponding to a permission to gradually increase the cost of service threshold in increments when the cost of service is above the cost of service threshold, and gradually increasing the cost of service threshold in increments until the cost of service is less than the cost of service threshold when the second input has been

received and the cost of service is above the cost of service threshold.

28. The communication system of claim 25, wherein each
5 of the plurality of network devices has a capability of
receiving a third user input corresponding to a permission to
begin the download process only after a random amount of time
has elapsed from when the cost of service initially falls
below the cost of service threshold, and delaying a start of
the download process until the random amount of time has
expired when the third input has been received and the cost of
service initially falls below the cost of service threshold.

15 29. The communication system of claim 25, wherein each
of the plurality of network devices notifies the corresponding
user when the download process is complete.

20 30. The communication system of claim 25, wherein the
network controller transmits the cost of service to each of
the plurality of network devices using a broadcast channel
common to all of the plurality of network devices.

25 31. The communication system of claim 25, wherein the
network controller informs each of the plurality of network
devices of the level of congestion.

32. The communication system of claim 31, wherein the network controller transmits the level of congestion to each of the plurality of network devices using a broadcast channel common to all of the plurality of network devices.

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33. The communication system of claim 25, wherein each of the plurality of network devices ceases the download process when the cost of service rises above the cost of service threshold, and resumes the download process when cost of service falls below the cost of service threshold.

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34. The communication system of claim 25, wherein the content comprises at least one of e-mail, stock quotes, sports scores, movies, audio files, data, software programs, and device driver updates.

35. The communication system of claim 25, wherein each of the plurality of network devices automatically monitors the cost of service, and automatically compares the cost of service to the cost of service threshold only when there is a change of the cost of service.

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36. The communication system of claim 25, wherein each of the plurality of network devices automatically notifies the user when the cost of service is below the cost of service threshold.

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37. The communication system of claim 25, wherein each of the plurality of network devices further provides at least one of the level of congestion and the cost of service to the corresponding user, respectively.

38. The communication system of claim 37, wherein each of the plurality of network devices displays at least one of the level of congestion and the cost of service to the corresponding user, respectively.

39. The communication system of claim 37, wherein each of the plurality of network devices audibly outputs at least one of the level of congestion and the cost of service to the corresponding user, respectively.

40. The communication system of claim 37, wherein each of the plurality of network devices displays at least one of the level of congestion and the cost of service to the corresponding user, respectively, using a series of stacking bars, such that increases in the level of congestion and/or the cost of service result in an increase in a number of displayed bars.

41. The communication system of claim 25, wherein the communication system is a Time Division Multiple Access (TDMA)

system, and the network controller determines the level of congestion by dividing a number of used slots by a number of total slots.

5 42. The communication system of claim 25, wherein the communication system is a Code Division Multiple Access (CDMA) system, and the network controller determines the level of congestion by dividing a number of used codes by a number of total codes.

10 43. The communication system of claim 25, wherein the communication system is a Frequency Division Multiple Access (FDMA) system, and the network controller determines the level of congestion by dividing a number of used frequencies by a total number of frequencies.

20 44. The communication system of claim 25, wherein the communication system is packet based, and the network controller determines the level of congestion by dividing a number of packets in a queue that stores incoming packets by a 25 total size of the queue.